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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/622,123	11/01/2000	Tilman Haug	225/49093	9928

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EXAMINER

DERRINGTON, JAMES H

ART UNIT PAPER NUMBER

1731

DATE MAILED: 12/24/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/622,123

Applicant(s)

HAUG ET AL.

Examiner

James Derrington

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17, 21 and 25 is/are pending in the application.
- 4a) Of the above claim(s) 16, 17 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Claims 1-15 and 25 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the production of a "reaction-bonded ... silicon-based matrix", by infiltration of molten liquid silicon into a shaped porous body containing carbon (See page 6, lines 13-18 and examples) does not reasonably provide enablement for production of a reaction bonded silicon matrix by other methods. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The claims should be amended accordingly.

Applicant has maintained that this rejection is somewhat unclear. The claims should be amended to recite the step of "infiltrating molten liquid silicon into a shaped porous body containing carbon" because this is the process shown in the specification (See page 6, lines 13-18 and examples).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida et al (5,741,457) in view of Krenkel et al (6,086,814) or the prior art discussed at pages 2-3 of the specification.

Iida et al disclose the process of producing fiber composite material comprising filling a mold with a plurality of compositions in successive steps (See paragraph bridging Cols 1 and 2). It is clear that a pressing step is envisioned by Iida et al (See

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Col. 1, line 22). Iida et al disclose that fibrous reinforcement and phenolic resins can be included in the compositions (Col. 1, lines 16-17). The successive introduction of the mold materials at predetermined areas in the mold are clearly mold materials of "different kinds" (See abstract). Claim 1 differs in that the molding material is based on a reaction bonded silicon based matrix with fibers based on carbon, silicon, boron or nitrogen. Krenkel et al disclose prior art processes of preparing carbon containing bodies and then infiltrating with molten silicon to prepare a reaction bonded silicon matrix. Krenkel et al disclose that the prior art has prepared carbon fiber-reinforced bodies by this silicification method (See Col. 1, lines 15-51). The materials of Krenkel are suitable for use as friction materials, e.g. brake materials (See Col. 1, lines 42-45). Similarly the prior art discussed at pages 2-3 sets forth processes of preparing carbon containing bodies and then infiltrating with molten silicon to prepare a reaction bonded silicon matrix. Iida et al disclose that their process of introducing different molding materials including fibers and binder into a mold provides advantages such as providing dispersion that is more satisfactory and improved properties at desired locations in the molded product and omission of mixing steps (See Col. 5, lines 17-35). In order to achieve the benefits of the process of Iida et al as discussed above, it would have been obvious for one of ordinary skill in the art to use the mold filling technique of Iida et al for preparing the materials of Krenkel et al and the prior art discussed in the instant specification.

With regard to limitations in the dependent claims, Iida et al disclose the production of granules (See Col. 3, line 62) while kneading to mix components is

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conventional and notoriously well known. The phenolic resin of lida et al is curable by heating (Col. 1, line 6 and line 22).

Applicant has maintained that the lida et al reference is in a different technical field. The examiner disagrees for the following reasons. The lida et al reference is directed to the introduction of materials (including fibrous materials and phenolic resin- col. 1, lines 16-17) into a mold. The instant process also includes the introduction of phenolic resin and fibers into a mold (See page 12, line 31 thru page 13, line 7). Krenkle is also directed to molding materials containing fibers and polymers. Thus the examiner submits that the lida et al and Krenkle references are within applicant's field of endeavor. The examiner disagrees that a pyrolyzable binder is not shown in the references. The instant specification discloses that a phenolic resin is the preferred pyrolyzable binder (page 9, lines 22-24). lida et al show phenolic resins. Krenkel et al also clearly discloses pyrolysis of materials including polymers.

The examiner disagrees that the methods of lida et al and Krenkel are in diverse fields. Both are directed to the production of fiber containing molded material including the production of friction elements.

Claims 3-13 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over lida et al (5,741,457) in view Krenkel et al (6,086,814) or the prior art discussed at pages 2-3 of the specification as applied to claims 1-2 and 14-15 above, and further in view of Chen et al (4,837,230) and or Derwent Acc No 1989-012429.

Chen et al disclose that reinforcing fibers for structural purposes can be improved in terms of strength (Abstract) by applying refractory coatings including carbon

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refractory coatings (See Col. 6, lines 27-57). It would have been obvious to use coatings with the fibers of Iida et al for the purposes disclosed by Chen et al. Derwent Acc No 1989-012429 discloses additional details regarding formation of granules of fibers and binders by extrusion. It would have been obvious to use these steps for forming the granules of Iida et al for art recognized purposes.

It does not appear that applicant has presented additional arguments in regard to this rejection.

Claims 16, 17 and 21 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 8. The traversal is not persuasive for reasons of record.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

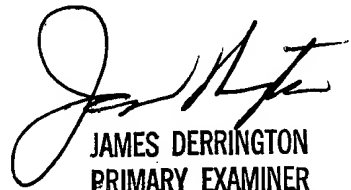
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Derrington whose telephone number is 703 308-3832. The examiner can normally be reached on 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 703 308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-7718 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

jd
December 20, 2002


JAMES DERRINGTON
PRIMARY EXAMINER
ART UNIT ~~137~~-1731